142   021   UNCLASSIFIED   PROCESSING DATE--27NOV70

TITLE--POSSIBLE INCREASE IN THE CONTACT DURABILITY OF DRILLING STEEL
20KHN3A BY ADDING SURFACE ACTIVE AGENTS TO THE CLAY WASHING MORTAR -U-

AUTHOR-(05)-KATSOV, K.B., KUSLITSKIY, A.B., KHRUNIK, R.A., ZHIDOVTSEV,
N.A., GILMAN, K.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ.-KHIM. MEKH. MATER. 1970, 6(1), 102-3

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS

TOPIC TAGS--ALLOY DESIGNATION, SURFACE ACTIVE AGENT, LOW ALLOY STEEL, WELL
DRILLING MACHINERY, EXPLORATORY DRILLING, CLAY/(U)20KHN3A LOW ALLOY
STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0327   STEP NO--UR/0369/70/006/001/0102/0103

CIRC ACCESSION NO--AP0126033
                    UNCLASSIFIED

272   · 021   UNCLASSIFIED   PROCESSING DATE--27NOV70
IRC ACCESSION NO--AP0126083
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE TITLE STUDY WAS CARRIED OUT ON
APP. AND WITH THE METHOD AS DESCRIBED BY K. B. K. (1968).   THE CLAY
SUSPENSION HAD SMALLER THAN OR EQUAL TO 1PERCENT SAND, PH EQUALS 7.5,
AND SP. GR. 1.16.   SPECIMENS DIAM. 10 MM FROM STEEL 20KHN31 AFTER
CONVENTIONAL HEAT TREATMENT (AS USED FOR OIL DRILLS) HAD HARDNESS OF
SURFACE LAYER HRC 59-60. ·THE FOLLOWING 4 SURFACE ACTIVE MIXTS. WERE
INTRODUCED AT 2PERCENT INTO THE CLAY WASHING MORTAR: (IN PARENTHESES
ARE GIVEN NO. OF MILLIONS OF CYCLES UNTIL THE APPEARANCE OF PITTING
CORROSION ON THE SURFACE): CLAY WASHING MROTAR ALONE (1.14), SAME PLUS
2PERCENT OXIDIZED PETROLATUM WITH ACID NO. 20 MG OF KOH (1.95), SAME
PLUS 2PERCENT PETROLUEM ASPHALT WITH ACID NO. 60 MG KOH (NO PITTING
AFTER 10), SAME PLUS 2PERCENT ESTERFIED PETROLEUM ASPHALT WITH ACID NO.
15 MG KOH (NO PITTING AFTER 10), TAP WATER AS A CONTROL (0.93), MACHINE
OIL AS CONTROL (11.8).   THE ADDN. OF THE PETROLEUM ASPHALT ALONE OR
ESTERFIED CAN IMPROVE CONSIDERABLY THE WORK·OF OIL DRILLS.
FACILITY: FIZ.-MEKH. INST., LVOV, USSR.

UNCLASSIFIED

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  1/2    042                    UNCLASSIFIED          PROCESSING DATE--30OCT70
TITLE--USE OF MASTICS BASED ON FURYL RESINS -U-

AUTHOR-(03)-KUTSENOK, B.I., FISKINA, R.YA., GILMAN, TS.I.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 60-1

DATE PUBLISHED-------70


SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHYSICAL CHEMISTRY PROPERTY, CHEMICAL STABILITY, ADHESIVE,
  PROTECTIVE COATING, PLASTIC COATING, QUARTZ, GRAPHITE, MERCURY,
  CONCRETE, CERAMIC, CHLORINATED ORGANIC COMPOUND/(U)FL2 PROTECTIVE
  COATING, (U)F8 PROTECTIVE COATING, (U)F10 PROTECTIVE COATING


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1694         STEP NO--UR/0191/70/000/002/0060/0061

CIRC ACCESSION NO--AP0112688
                         UNCLASSIFIED
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CIRC ACCESSION NO--AP0112688
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEM. STABILITY OF FL-2 MASTIC
  (I) (PREPD. FROM A FURYL RESIN FL-2), F-3 MASTIC, AND F-10 MASTIC
  (FILLED WITH FINELY DIVIDED QUARTZ OR GRAPHITE) WAS TESTED IN VARIOUS
  CORROSIVE MEDIA. I, HARDENED IN THE PRESENCE OF 6-10PERCENT P-CLC SUB6
  H SUB4 SO SUB3 H AT ROOM TEMP., EXHIBITED EXCELLENT PHYSICOMECH. AND
  CHEM. PROPERTIES.   OPTIMUM COMPN. AND PROCESSING CONDITIONS OF I WERE
  DETD.   A 7 YEAR STUDY SHOWED THAT I COATINGS EFFECTIVELY PROTECTED
  CONCRETE FLOORS AND CERAMIC WALLS FROM THE CORROSIVE EFFECTS OF NA SUB2
  S SUB2 O SUB4, NA SUB2 SO SUB3, NAOH, H SUB2 SO SUB4, AND H SUB2 O AT
  40DEGREES.   THUS, I AND ASBGVINIL MODIFIED WITH AN FL-2 RESIN CAN BE
  USED AS CHEM. RESISTANT AND HG PROOF MATERIALS.

UNCLASSIFIED

USSR

UDC: 8.74

GIL'MANOV, K. G.

"A Universal Formal Neuron"

V sb. Avtomaty i upr. setyami svyazi (Automata and Control of Communications Networks--collection of works), Moscow, "Nauka", 1971, pp 206-209 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V601)

Translation: The paper introduces the concept of a universal formal neuron and deals with the problem of analytical construction of such a neuron with a minimum overall number of exciting and inhibiting branches. Author's abstract.

1/1

USSR

MAGZUMOV, B. Kh., SAIYANTS, T. I., TYUTINA, V. A., STARTSEVA, L. I., and
GILMANOVA, G. A., Chair of Social Hygiene and Public Health Organization,
Tashkent Medical Institute

"Study of Basic Cardiovascular Diseases in Tashkent From a Sociosanitary
Aspect"

Abstract: The voluminous statistical data on the death rate due to cardio-
vascular diseases in the Soviet Union indicate that these diseases are the
number-one killers. Not only medical but also sociohygienic and socioeco-
nomic measures must be taken to combat this set of diseases; however, the
etiology, pathogenesis, and treatment have not yet been studied in detail.
A study was made of the characteristics of cardiovascular diseases in re-
lation to work and living conditions, characteristics of the spread of
cardiovascular pathology in nosological forms, and analysis of cardiovascu-
lar diseases with time loss in work capacity, disability, and death. Data
from the medical-prophylactic records in Tashkent were used. Data on
workers from various Tashkent industries were included. Among this group
1/2

USSR

MAGZUMOV, B. Kh., et al, Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 39-44

7.8% had cardiovascular diseases. Hypertension was found most frequently in women. Those in sedentary occupations requiring little physical exercise were more susceptible to hypertension than those engaged in physical work. As a result of this study, it was recommended that steps be taken to combat rheumatic fever, influenza, and other infectious diseases, to specifically treat those who live and work under conditions which promote cardiovascular disease, and to carry out sanitary-educational work in the field of cardiovascular diseases.

2/2

Immunology

USSR

UDC 616.932-084.47-036.8-078.73

ROSHCHIN, V. V., STEPANOV, V. M., SHMUTER, M. F., and GIL'MANOVA, N. A.,
Central Asiatic Scientific Research Antiplague Institute and Chardarin-
skaya Rayon Sanitary-Epidemiological Station

"Use of the Antigen Neutralization Reaction for Determination of Antibody
Level in People Vaccinated Against Cholera"

Moscow, Laboratornoye Delo, No 8, 71, pp 499-500

Abstract: The efficacy of cholera antibody erythrocyte diagnosticum used
in the antigen neutralization reaction (ANR) to determine the antibody
level in people vaccinated against cholera was studied. A group of adults
was vaccinated twice in a 7-day interval with killed vaccine in a concen-
tration of 8.10^9, with doses of 1 ml the first time and 1.5 ml the second
time. It was found that the largest number of people with an antibody
titer exceeding 1:40 and an arithmetic titer equaling 1:97 and 1:127 were
found 6-9 days after the second vaccination. The number of people with
such titers was considerably smaller during the first three days or 22-
60 days after the second vaccination. The antibody titer in these groups
also declined. Some variation in titer percentages found in people 22-60
1/2

USSR

ROSHCHIN, V. V., et al., Laboratornoye Delo, No 8, 71, pp 499-500

days after vaccination may be due to the fact that immunological rear-
rangement in the organism of different people may not take place at the
same rate. It was established also that using the ANR with the antibody
diagnosticum, it is possible to isolate antibodies from people vaccinated
against cholera as late as 60 days after the vaccination.

115479s Heterogeneity of iron-doped gallium arsenide crystals. Gimel'farb, F. A.; Girich, B. G.; Mil'vidskii, M. G.; Omel'yanovskii, E. M.; Pelevin, O. V. (USSR). Kristallografiya 1970, 15(1), 112–18 (Russ). The distribution of Fe in Fe-doped GaAs crystals was studied by various methods. At impurity concns. of $\sim 10^{18}$/cm³, a 2nd structural component with a const. molar ratio of GaAs:FeAs = 23.4:76.6 appears. A model describing the mechanism of appearance of this component is proposed. It consists of capture by the crystn. front of a drop of the melt which eventually crystallizes when its compn. becomes identical to that of the eutectic mixt. The dislocation concn. of the matrix crystal is higher in the vicinity of the inclusion. The 2nd structural phase, however, has practically no effect on the elec. properties of the semi-insulating GaAs crystals.   B. Soptrajanov

REEL/FRAME

·19840116

1/2   029   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--DISORDERS IN GLYCOLYTIC OXIDOREDUCTION AND COUPLED REACTIONS IN
   RABBIT TISSUE AT EXPERIMENTAL HYPERCHOLESTEROLAEMIA -U-
AUTHOR-(02)-SIDORENKOV, I.V., GILMIYAROVA, F.N.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 3, PP 250-253

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RABBIT, CARBOHYDRATE METABOLISM, ATHEROSCLEROSIS, ENZYME
   ACTIVITY, DEHYDROGENASE, BRAIN, LIVER, HEART, MUSCULOSKELETAL SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0269   STEP NO--UR/0301/70/016/003/0250/0253

CIRC ACCESSION NO--AP0120959
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0120959
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   IN ORDER TO LOCATE THE SPECIFIC
   REACTION IN THE DISORDERS IN CARBOHYDRATES METABOLISM AT THE
   EXPERIMENTAL ATHEROSCLEROSIS INDUCED BY CHOLESTEROL, THE ACTIVITIES OF
   DEHYDROGENASE OF 3 PHOSPHOGLYCERIC ALDEHYDE (E. C. 12.1.12) AND ALPHA
   GLYCEROPHOSPHATE DEHYDROGENASE (E. C. 1.1.1.8) IN MUSCLES, BRAIN AND
   LIVER SUPERNATANT HAVE BEEN STUDIED. THE PRONOUNCED FALL IN THE
   ACTIVITY OF DEHYDROGENASE OF 3 PHOSPHOGLYCERIC ALDEHYDE IN MUSCLES WAS
   DEMONSTRATED. THE ACTIVITY OF ALPHA GLYCEROPHOSPHATE DEHYDROGENASE IN
   LIVER MUSCLES AND BRAIN WAS COMPLETELY INHIBITED. THE CONTENT OF ALPHA
   GLYCEROPHOSPHATE IN THE HEART AND SKELETAL MUSCLES WAS DECREASED.
   FACILITY: CHAIR OF BIOCHEMISTRY, MEDICAL INSTITUTE, KUJBYSHEV.

UNCLASSIFIED

1/2   027   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--SYNTHESIS GROWTH, AND STUDY OF THE OPTICAL CHARACTERISTICS OF CSCU
   SUB2 CL SUB3 CRYSTALS -U-
AUTHOR-(05)-BELYAYEV, L.M., SOBOLEVA, L.V., GILVARG, A.B., DMITRIYEVA,
   F.I., OGADZHANOVA, V.V.
COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(1), 205-7   G

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CRYSTAL OPTIC PROPERTY, CRYSTAL GROWING, THERMAL ANALYSIS,
   COPPER CHLORIDE, CESIUM COMPOUND, CRYSTAL LATTICE STRUCTURE, LIGHT
   TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1980/0158   STEP NO--UR/0070/70/015/001/0205/0207

CIRC ACCESSION NO--AP0048450
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0048450
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CSCU SUB2 CL SUB3 WERE PREPD. FROM
   A STOICHIOMETRIC MIXT. OF CUCL SUB2.2H SUB2 O, METALLIC CU, AND CSCL IN
   20PERCENT EXCESS. CSCU SUB2 CL SUB3 FORMS COLORLESS NEEDLES, BECOMING
   YELLOW AND THEN GREEN IN A MOIST ATM. DTA OF THE STARTING PRODUCT AND
   PREPD. SINGLE CRYSTALS SHOWED IDENTICAL RESULTS: AN ENDOTHERMIC EFFECT
   AT 280DEGREES CORRESPONDING TO THE M.P. OF CSCU SUB2 CL SUB3. CSCU SUB2
   CL SUB3 BELONGS TO THE RHOMBODIPYRAMIDAL CLASS (3L SUB2 3PC, MMM) WITH
   UNIT CELL PARAMETERS A 9.49, B 11.88, AND C 5.61 ANGSTROM; THE BRAGG
   ANGLES OF THE 3 PRINCIPAL PLANES (100), (010), (001) ARE THETA (SUB100)
   EQUALS 9DEGREES 21 PRIME, THETA (SUB010) EQUALS 7DEGREES 27 PRIME, THETA
   (SUB001) EQUALS 15DEGREES 57 PRIME. THE PRINCIPAL NS, N GAMMA, N BETA,
   AND N ALPHA, ARE GIVEN FOR 8 MONOCHROMATIC WAVELENGTHS IN THE RANGE
   408-691 MN. HIGH TRANSMITTANCE OF CSCU SUB2 CL SUB3 IN THE VISIBLE AND
   IR RANGE WAS FOUND (TO 20 MU FOR THE THICKNESS 4.5 MM).
   FACILITY: INST. KRISTALLOGR., MOSCOW, USSR.

UNCLASSIFIED

USSR   UDC: 621.372.54

GIL'VARG, B. A., LIVENSKIY, G. A.

"On the Law of Distribution of Rates of Aging of Quartz Resonators"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Technology.
Scientific and Technical Collection. Radio Components), 1970, vyp. 5, pp 18-20
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V382)

Translation: It is experimentally shown that the distribution of rates of
aging of quartz resonators conforms to a normal law.

1/1

USSR   UDC: 621.372.412

GIL'VARG, B. A., LIVENSKIY, G. A.

"Concerning the Effect of Test Conditions on Aging of Quartz Resonators"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiokomponenty (Electronic Tech-
nology. Scientific and Technical Collection. Radio Components), 1970, vyp.
5, pp 12-17 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D353)

Translation: The paper presents the results of measurements of frequency
departures of quartz resonators from time when they are subjected to high
temperature and the maximum permissible excitation level. Resumé.

1/1

Ecology

GILYAROV, M. S. and KRIVOLUTSKIY, D. A., Institute of Evolutionary Morphology
and Ecology of Animals, Academy of Sciences USSR

"Radioecological Studies on Soil Zoology"

Abstract: Soil animals are a convenient model for studying the effects of
radioactive contamination because of their low mobiligy, large numbers, and
close contact with an environment contaminated by artificial radionuclides.
Experimental contamination of a plot in a birch forest with strontium 90 (1.8
to 3.4 microcuries/m²) markedly reduced the number of saprophages among the
mesofauna, especially among the groups dwelling in the litter and incapable
of migrating rapidly (earthworms, diplopods, lithobiids, geophilids, and so
forth). The effects of contamination could not be determined in animals
capable of flying at some stage in their life cycle or of moving considerable
distances in some other way (by phoresy or parasitism), probably because of
migration from "clean" plots. While the numbers of microarthropods tended to
remain the same, the variety of species diminished markedly four times com-
pared with the control). Increases were noted among rapidly moving insects,
especially predators and necrophages. From the standpoint of method, the

1/2

USSR

GILYAROV, M. S., et al, Zoologicheskiy Zhurnal, No 3, 1971, pp 329-342

authors recommend that similar experiments be performed on fairly isolated plots in order to prevent the immigration of mobile invertebrates. They note, in conclusion, the need to develop biological measures to control the radio-contamination of soil that might result from accidents. Some possible approaches are discussed.

2/2

- 3 -

USSR   UDC 546.661

GAYDUK, M. I., GILYAROV, O. N., ZHABOTINSKIY, M. YE., ZOLIN, V. F.,
KROTOVA, L.V. (DECEASED)   KULIKOVSKIY, B. N., LEBEDEV, V. G., and
ELLERT, G. V., Institute of General and Inorganic Chemistry imeni N.
S. Kurnakov, Academy of Sciences USSR

"Luminescence Centers in Solutions of Rare Earth Elements in Phospho-
rus and Selenium Oxychlorides at 77° K"

Abstract: The article considers the dependence of the relative con-
centrations of luminescence centers on the composition and conditions
for the preparation of europium solutions in phosphorus and selenium
oxychlorides with tin tetrachloride. The luminescence spectra of the
isolated centers are analyzed on the basis of crystal field theory.

1/1

USSR

UDC 542.91:547.1'118:547.558.1:547.564.4

TIKHONINA, N. A., GILYAROV, V. A., and KABACHNIK, M. I., Institute of
Organometallic Compounds, Academy of Sciences USSR

"Reaction of Triphenyl Phosphite With o-Aminophenol"

Abstract: A mixture of 13.67 g o-aminophenol and 4.95 g triphenylphosphite
heated for 4 hrs at 160-175° in a stream of argon yielded 2,3,7,8-dibenzo-
1,6-dioxa-4,9-diaza-5-phosphaspiro-[4,4]-nonane, m.p. 155-155.5°.

1/1

UDC 547.26'118

USSR

GILYAROV, V. A., and KABACHNIK, M. I., Institute of Heteroorganic Compounds, Academy of Sciences USSR

"Synthesis of N-Phosphorylimidophosphates, Substances Possessing Herbicidal and Defoliation Activity"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 10, 1972, pp 2148-2152

Abstract: Twenty-two N-phosphorylimidophosphates were synthesized by reacting trialkyl phosphites with dialkyl azidophosphates or ethyl methyl azidophosphonates. These substances have been reported to have herbicidal and defoliating properties. The yield, boiling point, refractive index, density, calculated and observed molar refraction, formula, percentages of C, H, and P and the frequency of IR absorption of the phosphorus-nitrogen double bond are reported for each. Some of the products are results of imide-amide of imide-imide rearrangements. Four dialkyl azidophosphate precursors were synthesized by reacting dialkyl chlorphosphates with sodium azide. The yield, boiling point, refractive index, density, calculated and observed molar refraction, and percent N, sand formula are reported for each.

1/1

USSR

UDC 542.91:547.1'118

KOVTUN, V. YU., GILYAROV, V. A., KABACHNIK, N. I., Institute of Hetero-organic Compounds of the USSR Academy of Sciences

"Obtaining Some Asymmetric Diarylimines of Tetraphenylmethylene-diphosphine"

Moscow, Izvestiya Akademii Nauk SSSR-- Seriya Khimicheskaya, No 11, 1972, p 2612

Abstract: The experimental procedure and results are presented from using the reaction of tetraphenylmethylenediphosphine-(N-phenylimine) with arylazides to obtain tetraphenylmethylenediphosphine-(N-phenyl-N'-p-tolyldiimine), tetraphenylmethylenediphosphine-(N-phenyl-N'-m-tolyldiimine), and tetraphenylmethylenediphosphine-(N-phenyl-N'-m-chlorophenyldiimine). The paramagnetic resonance spectra were taken on the Perkin-Elmer R-12 spectrometer.

1/1

USSR   UDC 547.785.5

KABACHNIK, M. I., Academician, TIKHONINA, N. A., KOROLEV, B. A., GILYAROV,
V. A., Institute of Organoelemental Compounds, Academy of Sciences of the
USSR; All-Union Scientific Research Institute of Organic Intermediate Pro-
ducts and   Dyes, Moscow

"2-Phosphabenzoxazoles -- a New Type of Cyclic Imidophosphoric Compounds"

Abstract: The authors study the basicity of aromatic (or pseudoaromatic)
rings containing the P=N bond but without strongly electronegative substituents
associated with the nitrogen atom. The 2-phosphabenzoxazole system is
selected as a representative, being a cyclic analog of phenoxy N-phenylimi-
dophosphorans, and a phosphorus analog of benzoaxazole. The yields, constants
and results of analyses of the 2-phosphabenzoaxazoles are given together with
the methods of synthesis developed by the authors. An investigation of some
of the properties of these compounds shows that a sharp reduction in basicity
of the P=N bond can be attributed to closure of a five-member ring which
might possibly be aromatic in nature.

1/1

GILYAROV, V. A., TSIVUNINA, N. A. and KABACHNIK, M. I.; Institute of
Heteroorganic Compounds, USSR Academy of Sciences

"Reactions of Imides of Phosphorus Acids with Phosphorylating Agents and
Trimethylchlorosilane"

Abstract: Substances of the type $[(C_2H_5O)_2P(O)]_xPC_5H_5$ are obtained from sodium
derivatives of amidophosphates $(RO)_2P\cdot OHR'Na$ and phosphoryl chlorides. How-
ever, no one has succeeded in synthesizing bis(diphenylphosphinyl)aniline from
sodium diphenyl-N-anilidophosphinate. The reaction of imidophosphorus com-
pounds with certain phosphoryl chlorides and with trimethylchlorosilane. It
was found possible to synthesize diphosphorylamines from imidophosphorus com-
pounds and phosphoryl chlorides; and trimethylsililanilidophosphates from 1-
phenylimidophosphorus compounds and trimethylchlorosilane.

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USSR   UDC 542.91:661.718.1

KOVTUN, V. YU., GILYAROV, V. A., and KABACHNIK, M. I., Institute of Metal-
organic Compounds, Academy of Sciences USSR

"Some Properties of Tetraphenylmethylenediphosphinedi(N-phenylimine)"

Abstract: Treating phenylazide with tetraphenylmethylenediphosphine or
tetraphenylethylenediphosphine by the method of Shtaundinger yields tetra-
phenylmethylenediphosphinedi-(N-phenylimine) (I) and tetraphenylethylene-
diphosphinedi-(N-phenylimine) (II) respectively. These two compounds differ
substantially in their properties. Treating (I) with excess methyl iodide
leads to the formation of monomethyliodide (II) while under analogous condi-
tions (II) gives dimethyliodide (IV). Hydrolysis of (III) followed by
separation of the amine showed a 1:1 ratio of N-methylamine:aniline, indicating
that only one phosphineimine group was alkylated in (I). Refluxing (I) with
armoatic aldehydes in xylene produces tetraphenylemthylenediphosphine (V).
Treating (I) with excess metallic sodium or butyllithium in tetrahydrofurane
leads to the replacement of one hydrogen atom on the methylene group. Metallic
derivatives of (I) react with CH_3I in tetrahydrofurane yielding diphenyl-
1/2

USSR

KOVTUN, V. YU., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2217-2221

$\int$N-methyl-N'-phenylamino$\int$-$\int$diphenyl(N'-methyl-N'-phenyl)aminophosphoranilidene$\int$methylphosphonium iodide.

2/2

USSR

UDC 543.42+541.6:661.718.1

MATROSOV, Ye. I., GILYAROV, V. A., KOVTUN, V. Yu., and KABACHNIK, M. I.,
Institute of Heteroorganic Compounds, Academy of Sciences USSR

"Spectra and Structure of Salts of Triphenylphosphine-N-phenylimine and Its
Complexes with Phenols"

Abstract: The authors studied IR spectra of halomethylates and the hydro-
bromide of triphenylphosphine-N-phenylimine and its complexes with phenol,
p-bromophenol and pentachlorophenol. On the basis of the resultant spectral
data the structure of phosphinimine salts can be characterized as mesomeric
with a pronounced phosphonium structure. The interaction of phosphinimine with
phenol and p-bromophenol gives complexes with a hydrogen bond of the composi-
tion 1:1, isolated in crystalline form. Spectral data on the pentachlorophenol-
phosphinimine complex indicate a strong acid-base interaction which apparently
results in protonation of the phosphinimine molecule.

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UDC 547.241:541.45

USSR

KOVTUN, V. Yu., GILYAROV, V. A., KOROLEV, B. A., MATROSOV, Ye. I., and
KABACHNIK, M. I., Institute of Organometallic Compounds, Acad. Sc. USSR
and Scientific Research Institute of Intermediates and Dyes

"Basicity and Nucleophilicity of Some Methylenediphosphinediimines"

Abstract: A series of substituted tetraphenylmethylenediphosphinedi-(N-
phenylimines) was obtained from tetraphenylmethylenediphosphine by treatment
with two moles of substituted phenylazides and converted to monomethiodides
by refluxing them in benzene in presence of methyl iodide. Equimolar quan-
tities of tetraphenylmethylenediphosphine react with benzyl or p-nitrobenzyl
bromide in benzene to give the corresponding benzylphosphonium salts which
upon reaction with phenylazides yielded diphenylbenzyl(or p-nitrobenzyl)
[diphenyl(N-phenylimino)phosphinylmethyl(or phosphonylmethyl)]phosphonium
bromides. The pK_a values were determined in nitromethane for all the com-
pounds obtained. It was determined that the basicity of the nitrogen atom
in these compounds depends on the nature of substituents in the phenyl ring
bound to the imine nitrogen atom. Hammet's equation applies to these com-
pounds.

1/1

USSR   UDC 547.26'418

GENKINA, G. K., KOROLEV, B. A., GILYAROV, V. A. and KABACHNIK, M. I., Institute
of Metalloorganic Compounds, Academy of Sciences USSR, and All-Union Scientific
Research Institute of Organic Intermediates and Dyes

"Basicity of Some Phosphorus Acid Imides"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, pp 80-84

Abstract: The authors determined the basicity of a series of phosphorus acid
imides of the type $XYZP = NC_6H_4R$ (R = H, p-F; X, Y, Z = Alk, AlkO, Ar, NR_2)
by potentiometric titration in nitromethane with perchloric acid and studied
the effect of substituents at the phosphorus atom on the strength of these
substances as bases. The pK_a values of the investigated phosphorus acid
imides show that they are all strong bases (pK_a from 13.4 to 19.7). The
values depend on the nature of the substituents X, Y and Z, they obey the Ham-
mett equation, using the constants $\sigma_{(\phi)}$ of the groups X, Y, Z.

1/1

USSR

GENKINA, G. K., GILYAROV, V. A., MATROSOV, YE. I., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Academy of Sciences USSR

"Study of Imide-Amide Rearrangement of Some Phosphorus Acid Imides Under the Action of Alkyl Halides"

Abstract: The authors made a kinetic study of the imide-amide rearrangement of imides of phosphorus acids under the action of ethyl iodide in acetonitrile at 50° and its dependence on the character of the substituents at the phosphorus atom. It was found that the rearrangement rate strongly depends on the substituents. There is a linear correlation between the logarithms of the rearrangement rate

constants and $\Sigma \sigma_p$ of the substituents at the phosphorus atom.

Some imides of phosphorus acids of the general type $AB(C_2H_5O)P=NC_6H_5$

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USSR

GENKINA, G. K., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1496-1501

and amides of phosphorus atoms of the general type $ABP(O)N(C_2H_5)C_6H_5$ were synthesized. Chromatographic analysis was performed by S. Yu. CHESNOKOVA and IR spectra taken by B. S. CHIKIL'DIN and M. I. VOLKOVA.

2/2

KABACHNIK, M. I., GILYAROV, V. A., KOROLEV, B. A., and RAYEVSKAYA,
T. A., Institute of Organo-Elemental Compounds, Moscow, Academy of
Sciences USSR, and Scientific Research Institute for Organic Semi-
Products and Dyes, Moscow, State Committee for Chemistry

"Tautomerism of P,P-Diethyl-N,N'-diarylphosphamidines"

Abstract: This study is concerned with quantitative investigation of
tautomeric relationship of phosphamidines in a nitromethane solution.
The phosphamidines were obtained by reacting diethylchlorophosphine
with substituted anilines in the presence of triethylamine, yielding
P,P-diethylanilidophosphinites, which when reacted with substituted
phenylazides in benzene at 50-60° gave various phosphamidines. The
basicity constants were determined for these compounds in nitro-
methane solution at 25 ± 0.3° by potentiometric titration; all were
found to be strong bases in nitromethane solution. Tautomeric equi-
librium constants were determined by three methods: "method of inter-

1/2

USSR

- KABACHNIK, M. I., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimi-cheskaya, Vol 4, Apr 70, pp 772-780

secting lines" and by two methods of comparison of effective basicity of tautomeric compounds with that of corresponding methylated deri-vatives. All methods gave similar results. Donor substituents shift the equilibrium towards the form in which the proton would be fixed close to the donor substituent, while the opposite occurs with the acceptor substituents.

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1/3   019   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--TAUTOMERISM OF P,P DIETHYL N,N PRIME DIARYLPHOSPHAMIDINES -U-

AUTHOR-(04)-KABACHNIK, M.I., GILYAROV, V.A., KOROLEV, B.A., RAEVSKAYA,
  T.A.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970 (4), 772-80

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TAUTOMERISM, ANILINE, TRIETHYLAMINE, ORGANIC PHOSPHORUS
  COMPOUND, AMINE DERIVATIVE, POTENTIOMETRIC TITRATION, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1431   STEP NO--UR/0062/70/000/004/0772/0780

CIRC ACCESSION NO--AP0135103
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0135103

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 15.5 G ET SUB2 PCL TO 11.6 G PHNH SUB2 AND 13.86 G ET SUB3 N IN ET SUB2 O, AND KEEPING THE MIXT. OVERNIGHT GAVE 54PERCENT ET SUB2 PNHPH (I), B SUBO.1 70-1DEGREES, N PRIME20 SUBD 1.5628, D PRIME20 0.9979; SIMILARLY WERE PREPD. THE P ANISIDIDE, 32PERCENT, B SUBO.1 114-15DEGREES, 1.5619, 1.0494; AND P TOLUIDIDE, B SUBO.02 73-4DEGREES, 1.5573, 0.9718. I AND P AZIDOBENZO TRIFLUORIDE MIXED SLOWLY AT 50-60DEGREES IN PETROLEUM ETHER AND THE MIXT. HEATED 0.5 HR AT 50-60DEGREES GAVE ET SUB2 P(:NC SUB6 H SUB4 X)NHC SUB6 H SUB4 Y (X EQUALS P CF SUB3, Y EQUALS H), M. 156.5-57DEGREES. SIMILARLY WERE PREPD. THE ANALOGS (X AND Y SHOWN): P ME SUB2 N, H, M. 148-9DEGREES; P MEO, H, M. 148-8DEGREES; P F, H, M. 160-1DEGREES; M F, H, M. 153-4DEGREES; P CL, H, M. 147-8DEGREES; M NO SUB2, H, M. 116-17DEGREES; P NO SUB2, H, M. 131-2DEGREES; P CN, H, M. 131-2DEGREES; M F, P MEO, M. 112-13DEGREES; M CL, P ME, M. 134-5DEGREES; P CL, P MEO, M. 165-6DEGREES; P NO SUB2, P MEO, M. 143-4DEGREES; P CL, P ME, M. 163-3.5DEGREES; M F, P ME, M. 126-7DEGREES; P CF SUB3, P ME, M. 153-4DEGREES; M NO SUB2, P ME, M. 131-2DEGREES; AND P NO SUB2, P ME, M. 119-21DEGREES. FROM POTENTIOMETRIC TITRN. DATA OF THESE AMIDINES WITH HCLO SUB4 IN MENO SUB2 THE CONCENTRATIONAL DISSOCN. CONSTS. OF THESE WERE CALCD. AND TABULATED AS PKA VALUES. FROM THESE BY THE METHOD OF INTERSECTING STRAIGHT LINES (K., ET AL., 1962) IT WAS POSSIBLE TO EST. THE TAUTOMERISM AMONG THESE AMIDINES. THE EQUIL. CONSTS. OF THE AMIDINES FOLLOW THE HAMMETT EQUATION AND CAN BE CALCD. FROM PK SUBT EQUALS 0.03 PLUS 1.793 SIGMA X WHERE SIGMA X IS THE SUBSTITUENT CONST.

UNCLASSIFIED

UNCLASSIFIED
CIRC ACCESSION NO--AP0135103   PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--THE BASICITIES OF THE AMIDINES WERE GENERALLY LOWER THAN
THOSE OF METHYLATED DERIVS., OWING TO THE INDUCTIVE EFFECT OF THE ME
GROUP IN THE LATTER. THE TAUTOMERIC EQUIL. CONSTS. FOR THE ABOVE
AMIDINES WERE TABULATED ALONG WITH PKA VALUES.   FACILITY: INST.
ELEMENTOORG. SOEDIN. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 547.241

LEVIN, Ya. A., GILYAZOV, M. M., and BABKINA, E. I., Institute of Organic
and Physical Chemistry imeni A. Ye. Arbuzov, Kazan' Branch of the Academy
of Sciences USSR, and the Branch of the Scientific Physical Chemical
Research Institute imeni L. Ya. Karpov

"Cyclohexyl-β-chloroethylphosphinic Acid and Its Derivatives"

Abstract: Reaction of cyclohexyldichlorophosphine with ethylene oxide in
ether at 0° gives a quantitative yield of di-β-chloroethylcyclohexylphos-
phonite, n_D^{20} 1.5055, d^{20} 1.2280, which rearranges after heating to the
β-chloroethylester of cyclohexyl-β-chloroethylphosphinic acid, b.p.
138-140/0.02 mm, n_D^{20} 1.5090, d_4^{20} 1.2400. The latter treated with PCl_5
yields cyclohexyl-β-chloroethylchlorophosphinate, b.p. 109-110°/0.03 mm,
n_D^{20} 1.5175, d_4^{20} 1.2500 which can be hydrolyzed to cyclohexyl-β-
chloroethylphosphinic acid, m.p. 50-52°.

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USSR

UDC 542.91+661.718.1

GILYAZOV, M. M., ZYABLIKOVA, T. A., MUKHAMETZYANOVA, E. Kh., SHERMERGORN, I. M., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences, USSR

"Derivatives of 1,3-Thiaphosphetanes"

Abstract: The reaction of the sodium salt of bis(chlormethyl)phosphinic acid with sodium sulfide in aqueous solution in presence of HCl gave a good yield of 3-oxo-3-hydroxy-1,3-thiaphosphetane;

$$(ClCH_2)_2P{\overset{\displaystyle O}{\diagdown}}_{ONa} \;+\; Na_2S \xrightarrow{\;HCl\;} S{\diagup}^{CH_2}{\diagdown}_{CH_2}P{\overset{\displaystyle O}{\diagdown}}_{OH} \;+\; 3NaCl$$

The produce was easily esterified. Ring cleavage was observed:

$$S{\diagup}^{CH_2}{\diagdown}_{CH_2}P{\overset{\displaystyle O}{\diagdown}}_{OC_2H_5} \;+\; C_2H_5OH \xrightarrow{\;C_2H_5ONa\;} CH_3SCH_2{-}P{\overset{\displaystyle O}{\diagdown}}_{(OC_2H_5)_2}$$

1/1

UNCLASSIFIED

TITLE--LUBRICANT FOR THE COLD AND HOT WORKING OF METALS -U-

AUTHOR-(05)-BERGELSON, L.D., DYATLOVITSKAYA, E.V., GRESHNYKH, K.P.,
GILIN, M.A., CHAMIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,351

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METALWORKING LUBRICANT, COLD WORKING, HOT WORKING, CHEMICAL
PATENT, LUBRICANT ADDITIVE, PETROLEUM PRODUCT, HYDROGENATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1801

STEP NO--UR/0482/70/000/000/0000/C000

CIRC ACCESSION NO--AA0130634

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2   030
CIRC ACCESSION NO--AA0130634   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   THE TITLE LUBRICANT IS PREPD. BY
   MICROBIOLOGICAL TRANSFORMATION OF A PARAFFIN CONTG. PETROLDEUM PRODUCT,
   HYDROGENATION OF THE RESULTING PRODUCT, DEODORIZATION, AND MIXING WITH
   ADDITIVES.   FACILITY: INSTITUTE OF CHEMISTRY OF NATURAL
   COMPOUNDS, ACADEMY OF SCIENCES, U.S.S.R.

UNCLASSIFIED

1/2   009   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--CHANGE IN THE AMINO ACID COMPOSITION OF RYE PROTEIN DURING RIPENING
-U-
AUTHOR-(03)-PRIYEZZHEVA, L.G., GOLENKOV, V.F., GILZIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--PRIKL. BIOKHIM. MIKROBIOL. 1970, 6(1), 26-31

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREAL CROP, PROTEIN, CHEMICAL COMPOSITION, AMINO ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0609
                             STEP NO--UR/0411/70/006/001/0026/0031
CIRC ACCESSION NO--AP0117837
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0117837   UNCLASSIFIED   PROCESSING DATE--15OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMINO ACID COMPN. OF RYE GRAIN
   PROTEINS AT DIFFERENT RIPENING STAGES WAS INVESTIGATED WITH AN AMINO
   ACID ANALYZER. DURING THE RIPENING PROCESS AN INCREASE OF THE RELATIVE
   CONTENTS OF CYSTEINE, PROLINE, AND GLUTAMIC ACID WAS OBSD., TOGETHER
   WITH A DECREASE OF ALANINE, VALINE, LYSINE, ASPARTIC ACID, THREONINE,
   AND GLYCINE; THE OTHER AMINO ACIDS WERE ESSENTIALLY UNCHANGED.

UNCLASSIFIED

Pesticides

USSR

UDC 632.95

MANSUR, N. A., and GIL'ZIN, V. M.

"Quantitative Determination of Chlorpicrin and Dichlorvos by Gas Chromatography"

Tr. Vses. n.-it zerna i produktov yego pererabotki (Works of the All-Union Scientific Research Institute for Grain and Grain Processed Products), No 68, 1970, pp 41-44 (from Referativnyy Zhurnal Khimiya, No 16 (II), 25 Aug 70, Abstract No 16 N667 by I. A. Revel'skiy)

Translation: Chloropicrin (I) and dichlorvos (II) are extracted from grain and air with n-hexane and determined on a stainless steel column (75 × 0.3 cm) filled with 5% SE-30 on celite 545 (80-100 mesh) with a thermal conductivity detector at the following temperatures: column 100°, evaporator 180°, detector 200°; the flow rate of the He carrier gas is 10 ml/min. The sensitivity of the method is 2×10^{-9} g I and 2×10^{-8} g II.

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USSR

GIMADI, E. KH and PEREPELITSA, V. A.

"Statistically Effective Algorithm for Separation of a Hamiltonian Contour (Cycle)"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 22, Novosibirsk, 1973, pp 15-28 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V350)

Translation: A statistically effective algorithm is described for determination of the Hamiltonian contour (cycle) in an n-point probability (or incomplete) graph. It is proven that with probability $p \geqslant (1+\varepsilon)\sqrt{\frac{\ln n}{2n}}, \varepsilon = \sqrt{\frac{\ln\ln n}{\ln n}}$ of appearance of a line, the algorithm almost always separates Hamiltonian contours in the graph, expending $\sim n^2$ memory locations and $\sim \frac{n^2}{\ln n}$ comparison-type operations. It is also shown that in the case of weighted graphs, when the lines are equally probably assigned an integer from sector [a, b], the algorithm almost always separates the minimum Hamiltonian contour if the number of integer points on [a, b] is not over $(1-\varepsilon)\sqrt{\frac{2n}{\ln n}}$. The same results are produced in the case of nonoriented graphs. 11 Biblio. Refs.   Author's view
1/1

1/2   016

TITLE--LOW TEMPERATURE METHOD FOR DEASHING PETROLEUM COKE -U-

UNCLASSIFIED   PROCESSING DATE--13NOV70

AUTHOR-(04)-ABYZGILDIN, YU.M., SYUNYAYEV, Z.I., BAYBAZAROV, A.I., GIMAYEV, R.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(4), 27-9

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--COKE, NITRIC ACID, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0058

STEP NO--UR/0055/70/015/004/0027/0029

CIRC ACCESSION NO--AP0125893

UNCLASSIFIED

CIRC ACCESSION NO--AP0125893
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COKE WAS CRUSHED, TREATED WITH
  63.5PERCENT HNO SUB3 AT SIMILAR TO 100DEGREES, WASHED WITH WATER AND
  DRIED TO SIMILAR TO 120DEGREES. THE ASH IN THE COKE TREATED 1 AND 6 HR
  WAS REDUCED FROM 0.84 TO 0.031 AND 0.005PERCENT, RESP. HNO SUB3 WAS
  RECOVERED.   FACILITY: UFM. NEFT. INST., UFA, USSR.

UNCLASSIFIED

1/2   019   UNCLASSIFIED   PROCESSING DATE--30OCT70

TITLE--PREPARATION OF GAS TURBINE FUELS OF IMPROVED QUALITY FROM
   DISTILLATES FROM COKING PETROLEUM RESIDUES AT HIGH PRESSURE -U-

AUTHOR-(05)-ROGACHEVA, O.I., SYUNYAYEV, Z.I., GIMAYEV, R.N., DAVYDOV,
   G.F., ZORIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 6-8

DATE PUBLISHED-------70

SUBJECT AREAS--PROPULSION AND FUELS, MATERIALS

TOPIC TAGS--COKE, PETROLEUM PRODUCT, VANADIUM, SULFUR, KEROSINE, GAS
   TURBINE FUEL, INDUSTRIAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1519   STEP NO--UR/0318/70/000/002/0006/0008

CIRC ACCESSION NO--AP0118506
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0118506
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KEROSINE GAS OIL DISTILLATES
  WERE IMPROVED WHEN DELAYED COKING WAS CARRIED OUT AT 6 ATM. FUELS
  CONTG. 0.0004PERCENT ASH AND 0.000072PERCENT V WERE THUS OBTAINED EVEN
  WITH COKING INTAKE STOCK FROM HIGH S PETROLEUMS. THE YIELDS OF COKE
  WERE ALSO INCREASED 6-9PERCENT.   CHARACTERISTICS OF THE RESIDUES AND
  FUELS OBTAINED AND EXPTL. DATA ARE PRESENTED. 7 REFERENCES.
  FACILITY: UFIM. NEFT. INST., UFA, USSR.

UNCLASSIFIED

USSR

PRELOVSKAYA, R. D., GIMBURZHEVSKAYA, M. F., MYMRINA, N. I.

"Analysis of Production Program with Various Criteria of Optimality"

Tr. Arkhang. Lesotekhn. In-ta [Works of Arkhangl'sk Institute of Forestry],
1971, Vol 31, pp 89-94, (Translated from Referativnyy Zhurnal, Kibernetika,
No 3, 1972, Abstract No 3 V473).

NO ABSTRACT.

1/1

1/2   025   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--CHEMICAL HETEROGENEITY OF EPITAXIAL LAYERS OF GALLIUM PHOSPHIDE
   GALLIUM ARSENIDE SOLID SOLUTIONS -U-
AUTHOR-(05)-GIMELFARB, F.A., KISTOVA, YE.M., MASLOV, V.N., SAKHAROV, B.A.,
   FISTUL, V.I.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 461-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--GALLIUM, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, EPITAXIAL
   GROWTH, SPECTROSCOPY, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1344   STEP NO--UR/0363/70/006/003/0461/0467

CIRC ACCESSION NO--AP0121837
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0121837
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REASONS FOR THE EMERGENCE AND
  THE METHODS OF ELIMINATION OF CHEM. HETEROGENEITY OF GAP SUBX AS SUB1
  NEGATIVEX SINGLE CRYSTALS WERE INVESTIGATED. THE CRYSTALS WERE GROWN BY
  THE SANDWICH METHOD ON GAAS SUBSTRATES WITH (111) ORIENTATION, BY USING
  A POWD. SOURCE PLACED 0.5 MM FROM THE SUBSTRATE. THE TRANSFER WAS
  ACCOMPLISHED IN A MOIST H ATM. AT AN AV. TEMP. OF 930-50DEGREES. THE
  GROWTH RATE WAS 10-20 MU,HR. THE DISTRIBUTION HETEROGENEITY OF THE
  FUNDAMENTAL COMPONENTS OF THE GAP-GAAS SOLID SOLN. WAS DETERMINED BY
  LOCAL X RAY SPECTROGRAPHIC ANAL. FOR SOLID SOLNS. WITH GAAS
  PREDOMINANT, THE HETEROGENEITY SHOWS UP PRIMARILY BECAUSE OF THE
  NONHOMOGENEITY OF THE SOURCE, AND CAN BE ELIMINATED BY HOMOGENIZATION.
  AT A HIGH GAP CONTENT, A MORE SIGNIFICANT EFFECT IS EXERTED ON THE
  UNIFORMITY OF THE CRYSTALS BY LATERAL GAS ETCHING OF THE GAAS SUBSTRATE,
  WHICH CAN BE REDUCED TO A MIN. BY MASKING THE SUBSTRATE, WITH THE
  EXCLUSION OF THE SECTION INTENDED FOR GROWING THE EPITAXIAL LAYER.
  PRIOR HOMOGENIZATION OF THE SOURCE AND THE MASKING OF THE SUBSTRATE ARE
  THE NECESSARY CONDITIONS FOR THE ELIMINATION OF CHEM. HETEROGENEITY OF
  SINGLE CRYST. LAYERS OF GAP-GAAS SOLID SOLNS. DURING EPITAXIAL GROWTH BY
  THE SANDWICH METHOD.

UNCLASSIFIED

GimEL, FARB, F.A.

SPAS 02005
(6-175)

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X-6b. APPLICATION OF ELECTRON SOUNDING MICROANALYSIS TO INVESTIGATE SEMICON-
DUCTOR SOLID SOLUTIONS OBTAINED BY THE METHOD OF CAPACITIVE EPITAXY

The method of electron sounding microanalysis was used to study the
peculiarities of the distribution of the basic components with respect to
thickness of layers of semiconducting solid solutions of $A^{III} B^{V}-A^{III} B^{V}$ and
$A^{III} B^{V}-A^{II} B^{VI}$ obtained by the method of liquid epitaxy (GaAs-AlAs, InP-GaP,
GaAs-ZnSe, and so on). The procedural possibilities for studying the local x-ray spec-
tral and microcathode luminescence analyses were demonstrated. The temperature func-
tions as the variation of the distribution coefficients of the components be-
tween the solid phase and liquid phase obtained by the results of x-ray spec-
tral and cathode luminescence measurements agree well with the theoretical
curves. The simultaneous recording of the x-ray and optical spectra in micro-
volume on the order of several microns permitted investigation of the laws
of variation of the physical parameters, in particular, the width of the for-
bidden zone along with the distribution laws of the components in the epitax-
ial layers.

104741v Disturbance of the homogeneity of gallium arsenide crystals during growth from melts of nonstoichiometric composition. Gimel'farb, F. A.; Lainer, B. D.; Mil'vidskii, M. G.; Fistul, V. I. (USSR). Kristallografiya 1970, 15(1), 201-2 (Russ). By local x-ray diffraction spectroscopy, the formation was studied of other phases in the prepn. of Ga arsenide single crystals from the melt of compn. 49-51 at. % As. From melts contg. excess Ga, inclusions contg. 85-90% Ga, 0-4.1% As, and O were obsd. In excess As, pores with a slight excess of As on the walls and compact inclusions contg. 94-96% As and 5.1-3.4 Ga were found. The size of the inclusions was ~200 μ max., and the content of Ga was only slightly higher than in the eutectic mixt. GaAs-As. The origin of these inclusions is discussed.   K. Volka

USSR

GIMEL'SHEYN, S. M., LEUS, V. A.

"Synthesis of Three-Dimensional Transfer Mechanisms"

Vychisl. Sistemy [Computer Systems -- Collection of Works], No 50, Novosibirsk, 1972, pp 44-63 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V530, by the author).

Translation: Problems of the application of optimal programming to the task of synthesis of a multiple-link lever mechanism are studied. The problem consists in seeking out values of the parameters of the kinematic system such that the actual dependence of output on input $v = v(u)$ is near piecewise-linear $v = \bar{v}(u)$, as fixed by the set of points $\{u_i, v_i\}$. The output variable is represented in integral form through transfer function K, and the solution to the problem of synthesis is reduced to search for the minimum goal function $F = \sum_i (v_i - \bar{v}_i)^2$ in the paralellepiped of the space of parameters. The deviation in the intervals between fixed points of the piecewise-linear dependence is estimated through the calculated values of the transfer function. A multiple-extreme nature of the goal functions and similar problems. A

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USSR

Gimel'sheyn, S. M., Leus, V. A., Vychisl. Sistemy, No 50, Novosibirsk, 1972, pp 44-63.

gradient linear-step method is used to seek the extreme. Results of calculation are presented for a specific mechanism.

UDC 669.181

USSR

KNYAZEV, V. F., GIMMEL'FARB, A. I., and NEMENOV, A. M.

Beskoksovaya Metallurgiya Zheleza (Cokeless Iron Metallurgy), Moscow,
Izdatel'stvo "Metallurgiya," 1972, 272 pp

Translation of Annotation: The book considers the theoretical bases of coke-
less iron metallurgy, as well as requirements for the iron ores and the fuel
reducing agent in cokeless metallurgy. The current state of cokeless metal-
lury in the USSR and elsewhere is reviewed. Technological schemes and pro-
cessing equipment, technological and economic indices, calculation methods
for determining the capacity of the basic industrial equipment, the quality
and application of metallurgical products, and prospects for the development
of cokeless metallurgy are also discussed.

The book is intended for engineers and technicians at industrial plants and
planning and scientific research institutions of ferrous metallurgy dealing
with problems of cokeless metallurgy. It may also be useful to teachers and
students at metallurgical higher educational institutions.

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Translation of Table of Contents:

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Introduction
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USSR

KNYAZEV, V. F., et al., Beskoksovaya Metallurgiya Zheleza, Moscow, Izdatel'-
stvo "Metallurgiya," 1972, 272 pp

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USSR

KNYAZEV, V. F., et al., Beskoksovaya Metallurgiya Zheleza, Moscow, Izdatel'-
stvo "Metallurgiya," 1972, 272 pp

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1/2   027   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--THE APPLICATION OF DIADYNAMIC CURRENTS IN COMBINATION WITH THE
   ADMINSTRATION OF NOVOCAINE -U-
AUTHOR-(02)-IZAKSON, KH.A., GIMMELFARB, D.S.

COUNTRY OF INFO--USSR

SOURCE--VOYENNO-MEDITSINSKIY ZHURNAL, 1970, NR 3, P 121-122

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANESTHESIA, NERVOUS SYSTEM DISEASE, PAIN, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0381   STEP NO--UR/0177/70/000/003/0121/0122

CIRC ACCESSION NO--AP0135867
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0135867
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIADYNAMIC CURRENTS ARE WIDELY
USED IN DISEASES OF THE PERIPHERAL NERVOUS SYSTEM (RADICULITIS,
NEURALGIA, ETC). HOWEVER, THE FELLING OF BURNING AND IRRITAION OF THE
SKIN UNDER THE ELECTRODES IN SOME PATIENTS REDUCED THE EFFECTIVENESS OF
THE TREATMENT. BECAUSE OF THAT A METHOD OF TREATMENT WITH DIADYNAMIC
CURRENTS WITH THE SIMULTANEOUS ADMINISTRATION OF NOVOCAINE IN THE
PAINFUL ZONES HAS BEEN APPLIED.   USUALLY, 2-2.5PERCENT NOVOCAINE
SOLUTION IS USED.   WITH THAT METHOD 140 MEN AGED 20-50 YEARS, SUFFERING
FROM VARIOUS DISEASES OF THE NERVOUS SYSTEM HAVE BEEN TREATED 41 MEN
WITH LUMBOSACRAL RADICULITIS, 7 WITH THORACIC, 10 WITH CERVICAL, 19 WITH
LUMBAR ISCHIALGIA, 21 WITH LUMBAGO, 8 WITH NEURITIS OF THE SCIATIC
NERVE, 8 WITH NEURALGIA OF THE FIRST BRANCH OF THE TRIGEMINAL NERVE, 6
WITH INTERCOSTAL NEURALGIA, 6 WITH BRACHIAL PLEXITIS, AND 14 WITH
MYOSITIS. ALTERNATION EVERYONE OR TWO MINUTES OF CURRENT MODULATED IN
SHORT AND LONG PERIODS, WITH SIMULTANEOUS OF NOVOCAINE AT THE PAINFUL
POINT, GAVE A GOOD THERAPEUTIC RESULT. THE PAIN SYNDROME WAS ELIMINATED
IN 86.4PERCENT OF THE PATIENTS AND IMPROVEMENT WAS NOTED IN THE REST.
IN A CONTROL GROUP (100 ANALOGOUS PATIENTS) IT WAS ELIMINATED IN ONLY
75PERCENT OF THE CASES.

UNCLASSIFIED

GIMEL,'FARO, F.A.

- 137 -

X-6a. STUDY ON THE DISTRIBUTION OF ADMIXTURES IN THIN EPITAXIAL SEMICONDUCTOR
LAYERS BY THE ION MICROANALYSIS METHOD

The method of ion microanalysis was used to study the distribution of
the acceptor admixtures of the IIIb subgroup of the periodic system in silicon
layers less than 5 microns thick obtained by gas epitaxy and the distribution
of amphoteric admixtures of subgroup IVb in thin layers of GaAs and $Ga_xAl_{1-x}As$.
In the example of these specimens, the possibilities of using the secondary ion
emission spectra to investigate the distribution laws of the admixtures with
respect to depth of the thin layers with a resolution of 100 Å are demonstrated.
The effect of the crystallization conditions and the type of allowing admixture
on the shape of the concentration profiles and also on the electrical proper-
ties of the silicon epitaxial layers and on the luminescent properties of the
epitaxial layers of GaAs and $Ga_xAl_{1-x}As$ to demonstrated.

USSR   UDC: 533.697

GIMRANOV, E. G., TARASOV, F. F.

"On Calculation of an Energy-Isolated Flow in Long Channels"

Translation: A procedure is outlined for calculating energy-isolated flows in long channels with regard to the coefficient of friction as a function of the Chaplygin and Reynolds numbers. The problem is solved by the methods of one-dimensional gas dynamics. Flow is studied in a channel which belongs to a family with power dependence of pressure on the area of the cross section. Two special cases are considered: a channel of constant cross section, and an expanding channel with zero pressure gradient along the longitudinal axis. No comparison of theoretical and experimental data is made in the paper. Yu. A. Lashkov.

1/1

Abstract: The several known methods for synthesizing the 2,4-thiazolidine-diones are inefficient, owing to the low solubility of 5-arylidinerhodanines in aqueous solutions of monochloroacetic acid, the thermal instability of those compounds, and other factors. A new method for synthesis of the 2,4-thiazolidindiones was devised to obviate these difficulties. Rhodanine was alkylated with an alkyl halide in a nonpolar solvent in the presence of an acceptor. Then the solvent was wholly or partially removed, and ethanolic HCl was added. This mixture was heated to 30-40° for 1 hour, the thiazoli-dinedione precipitated. Viariations on this basic method were used to syn-thesize nine different members of this group. Empirical and structural formulas, yields, etc., are given for these compounds.

1/1

USSR   ·   UDC 547.78

GINAK, A. I., V'YUNOV, K. A., SOCHILIN, E. G., Leningrad Technological Institute imeni Lensovet

"Phosphorylation of Rhodanine with Phosphorus Oxychloride"

Leningrad, Zhurnal Obshchei Khimii, Vol 40, No 6, Jun 70, pp 1423-1424

Abstract: Sodium rhodanine was treated with 10-20 fold excess of phosphorus oxychloride in tetrahydrofuran, the mixture cooled to -10 to 20°. Dirhodanyl chlorophosphate was obtained.

1/1

1/2   016   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--PHOTOGRAPHIC FILMS WITH INCREASED SENSITIVITY IN THE VACUUM
    ULTRAVIOLET SPECTRAL REGION -U-
AUTHOR-(04)-BOGDANOV, S.G., GINDENBERG, N.O., POLYAKOVA, N.V.,
    GRATSIANSKAYA, Z.I.
COUNTRY OF INFO--USSR

SOURCE--ZH. NAUCH. PRIKL. FOTOGR. KINEMATOGR. 1970, 15(2), 126-9

DATE PUBLISHED-------70

SUBJECT AREAS--METHODS AND EQUIPMENT

TOPIC TAGS--PHOTOGRAPHIC FILM, UV SPECTRUM, PHOTOGRAPHIC CHEMISTRY,
    PHOTOGRAPHIC EMULSION, OPTIC INSTRUMENT/(U)FSR9 SPECTROSENSITOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1691   STEP NU--UR/0077/70/015/002/0126/0129

CIRC ACCESSION NO--AP0118669
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0118669
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE AG (I, BR) EMULSIONS WITH
VARIOUS PROPERTIES WERE USED.   THE FILMS WERE PREPD. WITH A HORIZONTAL
CENTRIFUGE AND THEN EXPOSED IN A FSR-9 SPECTROSENSITOMETER BETWEEN 436
AND 254 NM.   THEY WERE DEVELOPED BY A 5 TIMES DILD. D-19 DEVELOPER AT
20DEGREES WITH THE ADDN. OF BENZOTRIAZOLE TO LIMIT FOGGING.   THE
SENSITIVITY OF ALL FILMS INCREASED SOMEWHAT WITH DECREASING WAVELENGTH
OF THE INCIDENT RADIATION.   THE SENSITIVITY WAS HIGHER BY ONE ORDER OF
MAGNITUDE, AND THE CONTRAST COEFF. WAS HIGHER THAN IN PLATES   COATED
CONVENTIONALLY WITH THE SAME EMULSIONS.   IN THE FAR UV REGION THE
SENSITIVITY WAS MUCH HIGHER THAN IN THE CONTROL UF-2T FILM AND WAS EQUAL
TO THE SENSITIVITY OF THE FILMS SC-5 AND SC-7.   THE APPLICATION OF THE
EMULSION LAYER BY CENTRIFUGATION IS A PROMISING METHOD.

UNCLASSIFIED

USSR   UDC 519.3:62-50

GINDES, V. B.

"On the Problem of Sensitivity of Approximation Methods of Search for Optimum
Control"

Sb. statey Kafedry vychisl. tekhn. Donetsk. politekhn. in-ta (Collection of
Articles of the Department of Computer Technology, Donetsk Polytechnical
Institute), 1970, vyp. 1, pp 14-17 (from RZh-Matematika, No 5, May 71, Ab-
stract No 5B669)

Translation: The author discusses aspects of an approximation solution of
a fast action problem for a system of the form

$$x(t) = c(t) + \int_{t_0}^{t_1} f(t, \tau)\, u(\tau)\, d\tau;$$

where x is an n-dimensional vector, and scalar control u satisfies the con-
dition $|u| \leqslant 1$.

1/1

USSR   UDC 512.25/.26+519.3:330.115

GINDES, V. B.

"Minimization of the Norm on a Convex Polyhedron"

Sb. Statey Kafedry Vychisl. Tekhn. Donetsk. Politekhn. In-ta, [Collected Articles of the Computer Technology Department of Donets Polytechnical Institute], 1970, No 1, pp 8-14, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5B535 by the author).

Translation: The problem of determining the points with the least norm in a convex polyhedron in a euclidean space is studied. The reduction of certain problems of optimal control and pattern recognition to this problem is described.

1/1

A70-25188 #   A successive approximation method for solving linear optimal control problems (Odin metod posledovatel'nykh priblizhenii dlia resheniia lineinykh zadach optimal'nogo upravleniia). V. B. Gindes. Zhurnal Vychislitel'noi Matematiki i Matematicheskoi Fiziki, vol. 10, Jan.-Feb. 1970, p. 216-223. In Russian.

    Consideration of the problem of minimizing the norm of the vector of the final state of a linear control system. A successive approximation method is proposed for solving this problem by reducing it to a number of auxiliary problems using the concepts of quadratic programming. An example illustrating the application of the proposed method is presented.   A.B.K.

USSR

GINDIKIN, S. G., Moscow State University

"Contractors in Spaces of Generalized Functions With Exponential Asymptotic Behavior"

Abstract: The author considers an extensive class of convex functions μ which are appreciably dependent on many variables and gives a complete description of contractors on certain spaces of the form S'_μ, the contractions in these spaces being described by equations which are solvable if and only if a functional solution exists which is a contractor. As a result, for equations in contractions (in particular, for differential equations) simple necessary and sufficient conditions are found for solvability on spaces S'_μ. In the cases considered, the contractors always have a classical Fourier transform which is a holomorphic function of several variables. Bibliography of two titles.

1/1

GINDILIS, V.M.

METHODS OF ANALYSIS OF SINGLE-LAYER PREPARATIONS: AUTOMATIC ANALYSIS ON A PLANAR FIGURE BY ITS CONTOUR (WITH CHROMOSOMES AS AN EXAMPLE)

Ya. S. Smolonich, Ya.B. Knzmovich, V. I. Gartshtyn, L. G. Kuzmlsova, and V. N. Gindilis

In the first section of this article, a method is considered for description of the geometrical properties of the contour of a planar figure (flat figure), which may find application in investigations of microobjects of complex shape. In the second section, the use of this method in automatic measurement of different parameters of human chromosomes is described. In the article the general ideas explained in several references [1—3] were used.

Statement of the Problem

In Figure 1 (a, b) the contour of a human chromosome is represented, and its actual assignment in a discrete raster. The researcher easily defines arcs on the contour of the chromosome corresponding to its arms, the peaks of the arms of the raster (Figure 1,) and uses this information for analysis.

The definition of arcs and special points may be considered a description of the given contour. The problem lies in obtaining its descriptions automatically, i.e., by means of a set of programs for an EVM (electronic computer). A formal description of the boundary of a chromosome may serve as the basis for solutions of problems of recognition, i.e., for defining it among other objects.

Algorithms for Analysis of the Contour

Description of the contour by means of arcs

We will consider that the contour consists of individual points, and a cell of the black-and-white raster a point.

- 4 -

USSR   UDC 539.4

GINDIN, A. I., LAPIYASHVILI, E. S., NASKIDASHVILI, I. A., NEKLYUDOV, I. M.,
(Khar'kov, Tbilisi)

"The Bauschinger Effect in Annealed and Irradiated Titanium"

Kiev, Problemy Prochnosti, No 8, 1972, pp 118-120.

Abstract: Results are presented from studies of the influence of the degree
of deformation hardening on Bauschinger effect of annealed specimens of
titanium following neutron bombardment in a low-temperature channel in a
reactor with programmed loading following bombardment. It is demonstrated
that irradiation and subsequent programmed loading help to increase the de-
formation resistance of titanium specimens to both unidirectional and sign-
changing loads.

1/1

USSR   UDC 621.77.016.2ı669.14.018.8

BULAT, S. I., GINDIN, A. SH., MARKOVICH, V. I., and MEANDROV, L. V.

"Influence of Hot Rolling Mode on Structure of OKh17T Steel"

Spetsial'nyye Stali i Splavy [Special Steels and Alloys--Collection of Works],
No 77, Metallurgiya Press, 1970, pp 145-150

Translation: Various modes of heating and rolling of OKh17T steel are studied on
a semicontinuous mill. Experiments are performed, refining the mechanism of
structure formation of high-chromium steel during hot rolling. Conditions of
production of fine-grain structure and high plastic properties are determined.
4 tables; 5 biblio. refs.

1/1

Single Crystals

GINDIN, I. A., LAPTEV, I. N., NEKLYUDOV, I. M., PAPIROV, I. I.,
and TIKHINSKIY, G. F., Physicotechnical Institute of the Academy
of Sciences UkrSSR

"Change of the Anisotropy of the Resistance to Plastic Deforma-
tion of Beryllium Single Crystals After Program Loading"

Abstract: A study was made of the effect of preliminary programmed
loading along the c-axis on the crystal shear stresses in diffe-
rent crystallographic planes of beryllium single crystals. Results
of the investigation of the influence of annealing under continu-
ously progressive loading on the anisotropy of the resistance to
plastic deformation indicate that program loading lowers the
strength of crystals in their tests along the c-axis; but the cri-
tical shear stresses on the basal planes, on the other hand,
increase approximately by 50%. As a result of the non-additive
reaction of the program loading on the shear stresses in diffe-
rent crystallographic planes, the anisotropy of the resistance

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USSR

to plastic deformation of beryllium single crystals decreases. The process of disproportionation of point defects, which is assumed to take place in single crystals by annealing under continuously increasing loading applied along the c-axis, goes in two directions: a) diffusion of admixed and internodal atoms with their separation along basal planes and on a-dislocations, and b) diffusion of vacancies generatable by creeping of a-dislocations with formation of prismatic loops of c-dislocations. Three figures, 13 bibliographic references.

Mechanical Properties

USSR

UDC: 539.4

GINDIN, I. A., LAPIAZHVILI, E. S., NASKIDASHVILI, I. A., NEKLYUDOV, I. M.,
Tbilisi, Khar'kov

"Influence of Neutron Bombardment on Mechanical Properties and Effect of
Programmed Hardening of Titanium"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 49-52.

Abstract: Results are presented from studies of the influence of neutron bombardment by integral doses of $1.2 \cdot 10^{18}$ n/cm^2 and $3.2 \cdot 10^{18}$ n/cm^2 at 130° C on the mechanical properties of polycrystalline titanium and the effect of additional hardening following annealing without load and under smoothly increasing load in the macroelastic area of deformation at 20 and 200° C. It is shown that bombardment increases the yield point by approximately 40%, while bombardment with subsequent annealing under smoothly increasing load increases the yield point of titanium to almost double its original value. VT-1 titanium was used in the study.

1/1

USSR

GINDIN, I. A., OKOVIT, V. S., and CHIRKINA, L. A., Physicotechnical Institute,
Academy of Sciences Ukr SSR

UDC 669.5:539.67

"Internal Friction of Zinc Single Crystals After Twinning Deformation"

Abstract: An experimental investigation was made to determine the temperature
and frequency dependence of the internal friction of original zinc single crystals
and ones deformed by twinning. The crystals varied in purity. The dissipative
possibilities of deformation twin boundaries were investigated by the internal
friction method. Single-crystal zinc of 99.998% (Zn-A) and 99.98% (Zn-B) purity
was selected to investigate the phenomena of inelasticity related to the presence
of deformation twins. Measurements were carried out on a reverse torsional
pendulum at frequencies of 1.1 and 3.0 hz in the amplitude-independent region,
with an operational amplitude not exceeding 1.5×10^{-5}. It is shown that the
temperature dependence ζ (T) of the zinc single-crystal decrement of all samples,
without twins, is characterized by a nearly horizontal curve with no anomalies,
in the range of temperatures considered.

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USSR

GINDIN, I. A., et al., Akademiya Nauk SSSR, Fizika Metallov i Metallovedeniya, Vol 29, No 1, Jan 70, pp 162-167

In samples deformed by twinning, a peak appeared on the characteristic at 240°C. The initial behavior (of all characteristics of originals and with twin inter-layer) coincided. This fact indicates, as does the conducted X-ray analysis, that with twinning deformation the matrix remains undistorted. The effect of impurity content, amplitude, and frequency on the temperature dependence of a damping decrement was investigated. The distinctive properties of the peak, owing to the motion of twin boundaries (variation of temperature and peak height with the oscillation frequency) were identical to the peak characteristic with martensite transformations. This is of great interest, because a similarity is also observed in the kinetics of the martensite needle and twin interlayer growth. Orig. art. has: 3 figures.

2/2

Single Crystals

GINDIN, I. A., LAPTEV, I. V., NEKLYUDOV, I. M., TIKHINSKIY, G. F.

"Change in Anisotropy of Plastic Deformation of Beryllium Single Crystals
Following Programmed Loading"

Abstract: The influence of preliminary programmed loading on the critical
stresses of the beginning of twinning and slipping in beryllium single crystals
of various orientations was studied. The single crystals were grown by the
method of slow cooling of a melt in a vacuum. Programmed loading was con-
ducted at 400°C for 30 hours using stresses not exceeding the critical stress
of the beginning of twinning of crystals of the orientations used. The
studies showed that extended annealing under smoothly increasing load increases
the flow stress for the base planes by approximately 25% and significantly
reduces the splitting stress in the other planes. It is concluded that this
non-additive effect of programmed loading on shear stress in the different
planes results from oriented redistribution of impurities in the volume of
the crystal.

1/1

USSR   UDC 539.385

GINDIN, I. A., STARODUBOV, YA. D., and STAROLAT, M. P.

"Change of the Structure of Nickel in the Process of Low-Temperature Plastic Deformation in the Presence of Alternating Loading"

Khar'kov Fiz. Mekhanizmy Plastich. Deform. pri Nizkikh Temperaturakh -- Sbornik (Physical Mechanisms of Plastic Deformation at Low Temperatures -- Collection of Works), 1971, pp 63-64 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2V1382, Authors' Abstract)

Translation: An investigation is made of the influence of fatigue-test temperature upon the cyclical duration of polycrystalline nickel (99.996%) and the change of its dislocation structure   in relation to the amplitude of alternating stresses. Fatigue tests were conducted with symmetrical flexure of cantilever samples with a frequence of 50Hz at 300, 77, 20, and $4.2^{\circ}K$. It was shown that decreasing the temperature of fatigue tests brings about an increase of cyclical durability. Research on the dislocation structure of the samples, after cyclical loadings with varied stress amplitude, showed that the minimal amplitude of alternating stresses, at which the formation of accumulations of dislocation loops and dipoles takes place, increases as the fatigue-test temperature is diminished. There is a corresponding increase of stresses accompanied by the formation of fatigue ship bands.

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USSR

UDC 539.5

GINDIN, I. A., NEKLYUDOV, I. M., NETESOV, V. M., STAROLAT, M. P., Khar'kov

"Structure and Properties of Type 1Kh18N9T Austenitic Steel Following Programmed Loading"

ABSTRACT: A study is presented of the influence of annealing and programmed loading of 1Kh18N9T steel on the structure and mechanical properties. It is demonstrated that programmed loading of hardened austenitic steel at 400 and 600°C causes an increase in the strength characteristics over a broad temperature interval in subsequent tests. The basic mechanism of hardening at 400°C is formation of a dislocation structure with high density of triple points, dislocation loops and helicoidal dislocations. Programmed hardening at this temperature also causes a reduction in packing defect energy. Hardening at 600°C is achieved by development of evenly distributed, finely dispersed carbide inclusions.

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USSR

UDC 539.376

GINDIN, I. A., KHOTKEVICH, V. I., NEKLYUDOV, I. M., LEBEDEV, V. P., and
BOBONETS, I. I., Physicotechnical Institute, Academy of Sciences, Ukrainian
SSR and Khar'kov State University imeni A. M. Gor'kiy

"Change in Nickel Dislocation Structure and Properties at Varying Loading
Rates"

Abstract: Results of investigating the structural change and properties of
polycrystalline nickel in relation to rate and degree of pre-strain are
presented. Pure nickel (99.996%) in the form of strip rolled at room tem-
perature was used which was annealed at 900°C for one hour in a vacuum result-
ing in a grain size of 0.3 mm. Loading the samples was accomplished in a
special unit at 200°C up to various degrees of strain with rates of 0.2 and
1×10^3 kg/mm^2-hr followed by elongation at room temperature at the rate of
30 mm/sec. Electrical resistance was measured after cooling to 77°K. It
was found that for relatively rapid rates of loading, principles governing
change of resistance to deformation, electrical conductivity, and disloca-
tion structure are observed which are normal for fcc crystals. For slower
1/2

USSR

GINDIN, I. A., et al., Fizika Metallov i Metallovedeniye, Vol 32, No 1,
Jul-Aug 71, pp 139-144

rates of loading, when diffusion processes play a substantial role, devia-
tions from these principles are possible. Slow loading rates in the macro-
elestic region promote diffusion redistribution of defects into energetically
suitable points, promote coalescence of point defects, and promote formation
of dislocation loops. These processes lower electrical resistance and
increase yield strength upon subsequent strain of samples. Five figures,
21 bibliographic references.

2/2

USSR

GINDIN, I. A., STARODUBOV, YA. D., STAROLAT, M. P.

"Device for Fatigue Testing at Temperatures of 1.5-300°K"

Moscow, Zavodskaya Laboratoriya, Vol XXXVII, No 4, 1971, pp 488-489

Abstract: A fatigue testing device developed at the Physicotechnical In-
stitute of the Ukrainian SSR Academy of Sciences is described. The device is
simple and convenient to operate, and it permits testing for sign-variable
console bending and also torsion of the sample with a frequency of 50 hertz
at temperatures of 1.5-200°K. For low temperature testing the sample is put in
a coolant (liquid helium, hydrogen, nitrogen, oxygen) which in practice excludes
heating of it during the test process. The device is designed to permit test-
ing of samples made of various materials (metals, alloys, plastics, and so on).
It can also be used to test samples in different gas and liquid media at room
and elevated temperatures. During low temperature testing, the consumption of
compressed gas is low -- 0.3, 0.5 and 0.9 liters/hour of nitrogen, hydrogen and
helium, respectively.

1/1

1/2   041   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--EFFECT OF THE SUPERCONDUCTING STATE ON THE CREEP OF METALS -U-

AUTHOR-(04)-GINDIN, I.A., LAZAREV, B.G., LEBEDEV, V.P., STARODUBOV, YA.D.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(6), 288-90

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL CREEP, INDIUM ALLOY, THALLIUM ALLOY, MERCURY, MECHANICAL
   PROPERTY, SUPERCONDUCTING ALLOY, SUPERCONDUCTIVITY, CRYSTAL DISLOCATION,
   TIN, LOW TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0925   STEP NO--UR/0396/70/011/006/0288/0290

CIRC ACCESSION NO--AP0116435
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0116435
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ELECTRONS ON THE
MECH. PROPERTIES WAS STUDIED FOR SUPER CONDUCTING IN, TL, HG, AND SN
UNDER CREEP CONDITIONS AT 1.8-4.2DEGREESK.   IN ALL OF THE CASES A
WEAKENING WAS OBSD. DURING THE CREEP TESTS IN THE SUPERCONDUCTING STATE
AS SHOWN BY A MARKED INCREASE IN THE CREEP, THE EFFECT INCREASING AS THE
TEMP. IS LOWERED BELOW T SUBC.   THE INCREASE IN THE WEAKENING BELOW T
SUBC MAY BE DUE TO A DECREASE IN THE RETARDATION OF THE MOVING
DISLOCATIONS AS THE NORMAL COND. ELECTRONS ARE EXHAUSTED.
FACILITY: FIZ.-TEKH. INST., KHARKOV, USSR.

UNCLASSIFIED

TITLE--INTERNAL FRICTION OF ZINC SINGLE CRYSTALS AFTER TWINNING
   DEFORMATION -U-

AUTHOR-(03)-GINDIN, I.A., OKOVIT, V.S., CHIRKINA, L.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL. METALLOVED. 1970, 29(1), 162-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL INTERNAL FRICTION, METAL SINGLE CRYSTAL, ZINC, THINNING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0699   STEP NO--UR/0126/70/029/001/0162/0167

CIRC ACCESSION NO--AP0105675
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0105675   UNCLASSIFIED   PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISSIPATIVE CAPABILITIES OF THE DEFORMATION TWIN BOUNDARIES OF ZN WERE INVESTIGATED BY THE INTERNAL FRICTION METHOD. THE MEASUREMENTS WERE MADE ON A REVERSE TORSIONAL PENDULUM AT FREQUENCIES OF 1.1 AND 3.0 HZ WITHIN THE AMPLITUDE INDEPENDENT REGION. THE WORKING AMPLITUDE WAS NOT GREATER THAN 1.5 TIME 10 PRIME NEGATIVE5. THE SAMPLES WITHOUT TWINS ARE CHARACTERIZED BY A MONOTONIC BEHAVIOR OF DELTA(T) WITHOUT ANOMALIES. FOR SAMPLES DEFORMED BY TWINNING, A PEAK OCCURS ON THE DELTA(T) CURVE AT 240DEGREESK. THE TEMP. BEHAVIOR OF THE ATTENUATION DECREMENT WAS DETD. AS A FUNCTION OF THE IMPURITY CONTENT, THE AMPLITUDE, AND THE FREQUENCY OF VIBRATIONS. THE CHANGE IN THE WIDTH OF THE TWIN INTERLAYERS DURING THE INTERNAL FRICTION MEASUREMENTS WAS ALSO DETD. THE ANOMALIES OF THE OBSD. PEAK ARE COMPARED WITH CERTAIN OTHER INTERNAL FRICTION PEAKS.

UNCLASSIFIED

USSR   UDC 577.1:547.963.3

ZHIL'TSOVA, V. M., ZHIZHINA, G. P., KRUGLYAKOVA, K. Ye., and GINDIN, L. G.,
Institute of Chemical Physics, USSR Academy of Sciences, Moscow

"Structural Changes in Single-Strand DNA After Exposure to Ultraviolet Rays"

Abstract: Ultraviolet irradiation of aqueous solutions of single-strand
DNA (isolated from rat spleen) caused an exponential decrease in viscosity
and optical density at 260 nm. Dimerization of the thymine bases and
rupture of the polynucleotide chains resulted in partial twisting of the
DNA strands.

1/1

TITLE--ELECTRON PHONON OPTIMIZATION OF SOME POLYMERS -U-

AUTHOR-(04)-GINDIN, L.G., RAVICH, I.YA., TOROPTSEVA, T.N., LIDORENKO, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1374-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON, PHONON, PYROMELLITIC ACID, POLYMER, HEAT
    CONDUCTIVITY, SILVER, NICKEL, COMPLEX COMPOUND, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1087   STEP NO--UR/0020/70/190/006/1374/1377

CIRC ACCESSION NO--AT0124744
                        UNCLASSIFIED

CIRC ACCESSION NO--AT0124744   UNCLASSIFIED   PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF AGOAC, NI(OAC) SUB2,
CR(OAC) SUB3, OR BE(OAC) SUB2 TO POLYPYROMELLITIMIDE (I) FILMS (PREPD.
BY POLYCONDENSING (4,H SUB2 NC SUB6 H SUB4) SUB2 O WITH PYROMELLITIC
DIANHYDRIDE AND HEATING THE POLYAMIDE TO 300DEGREES) INCREASED THEIR
HEAT COND. COEFF. (LAMBDA), WITHOUT APPRECIABLY INCREASING THE ELEC.
COND. COEFF. (SIGMA). WHEN THE POWD. AG, OR NI WERE ADDED TO I BOTH
LAMBDA AND SIGMA INCREASED. HEATING SALT FILLED I DECOMPD. THE SALTS
GIVING METAL GLOBULES SIMILAR TO 100 ANGSTRUM IN DIAM. SEPD. BY 300-500
ANGSTROM DISTANCES. THE RELATION BETWEEN LAMBDA AND METAL CONCN. (C) IS
LAMBDA IS SIMILAR TO C PRIMEALPHA (N. S. LIDORENKO, ET AL. 1969). ALSO
SIGMA EQUALS SIGMA SUBO EXP(E-2KT), WHERE E IS THE ACTIVATION ENERGY.
THE SALTS DECOMPD. AT LOWER TEMP. THAN THE CHELATES SUCH AS II, WHICH IN
CASE OF AGOAC WAS STABLE SMALLER THAN OR EQUAL TO 330DEGREES, I.E.,
ABOVE I PREPN. TEMP.

UNCLASSIFIED

Extraction and Refining

USSR
                                        UDC 669.778.053.4.094

NIKOLAYEV, A. V., GINDIN, L. M., SOKOLOV, A. P., ZAKHAROV, V. F., KHOMAYKO, I. A.

"Leaching Antimony out of the Khovu-Aksinsk Arsenates of Cobalt-Nickel Concentrates by Caustic Soda Solutions"

Translation: The technological scheme for refining arsenate concentrates was developed using the method of two-stage leaching out in NaOH solutions under optimal conditions: 1) the first leaching out stage: initial NaOH concentration 250 g/ℓ, S:L = 1:4, temperature 80°, duration 1 hour; 2) second leaching out stage: initial NaOH concentration 250 g/ℓ, S:L = 1:4, temperature 80°, duration 2 hours. Aqueous repulping of the hydroxide cake took place under these conditions: S:L = 1:7, temperature 60°, duration 2 hours. The separation of the trisodium arsenate or regeneration of the alkali from trisodium phosphate by lime was carried out under the following conditions: S:L = 1:4-5 (with respect to lime), temperature 90°, duration 1.5 hours. The extraction of As in the solution was 98.5-99%. Nonferrous metals convert in practice wholly to the hydroxide concentrates, extraction of the metal in which is: 99.9% Co, 99.9%

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NIKOLAYEV, A. V., et al., _Sintez, ochistka i analiz neorgan. materialov_, Novo-sibirsk, Nauka Press, 1971, pp 171-174

Ni, and 99.7% Cu. The concentrate yield is 48-55% by weight of the arsenate concentrate. The technological scheme was checked on a semiindustrial scale.

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AP9052914

UR 0289

Z. A. Nal'kina,
L. M. Gindin; I. M. Ivanov

THE EXTRACTION OF AMMINES COBALT

The extraction of five cobalt (III) ammines: $(Co(NH_3)_6)Cl_3$, $(Co(NH_3)_5H_2O)Cl_3$, $(Co(NH_3)_5Cl)Cl_2$, $(Co(NH_3)_5NO_3)Cl_2$, $(Co(NH_3)_4Co_3)Cl$ has been investigated depending on the pH of medium. The studied complexes are extracted by caprylic acid better than ammonium ion. The extraction curves fall into groups according to the charge of the complexes.

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UR 0289

A. A. Vasil'eva, L. M. Gindin, Z. A. Grankina,
G. I. Smirnova, I. R. Shelpakova, I. G. Judelevich

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ANALYSIS OF PLATINUM METALS BY THE EXTRACTION-SPECTRAL
AND PHOTOMETRIC METHODS

I. Extraction of Platinum and Palladium from Iridium, Rhodium
and Ruthenium for the Analytic Purposes

In the extraction of Pt (IV), Pd (II), Ir (III), Rh (III) and Ru (III) with tetraocty-lammonium bromide from toluenecaprylic acid (HR') and from foluene-2-ethylbekanol (R"OH) decrease of the acid (alcohol) concentration results in a decrease of the distribution coefficients with all the metals studied.
Caprylic acid forms a product of the composition $\{(C_8H_{17})_4NB_2\}_2 (HR_2)$. With tetra-

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octylammonium bromide as revealed by the JRS method.
This interaction is the cause of the "decreasing" effect of HR'(R"OH) on the abili-
ty of Br-ion to the exchange reactions with the extractable anions.
The chemical and spectral method have been elaborated for the determination of
the platinum metals in HCl-media.

1949   1840

GINDIN, S. I.

"Cemantics of Text and Various Information Theories"

Nauch.-tekhn. Inform. sb. Vses. In-t Nauch. i Tekhn. Inform. [Scientific and Technical Information, Collection of All-Union Inst. of Sci. and Tech. Inform., 1971, Series 2, No 10, pp 10-15,37, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V618 by the author).

Translation: The interrelationship of information theory and linguistic ce-mantics is analyzed. A study is presented of the cemantic results of various theories of information constructed by Shannon, Karnap and Bar-Hillel, Voyshvillo, Wells, Kolmogorov, Meloni, Harr and Poletayev. It is demonstrated that not only the cemantics of text must use concepts concerning the process of information perception, but information theory as well, in turn, must be based on the development of the concept of the cemantic structure of text. The most adequate theory for purposes of linguistic cemantics is the theory of cemantic information of Yu. A. Shreyder, in connection with which his application to formalization of the concept of actual separation and to pro-blems of perception of unfamiliar words, including untranslated words, is studied. 39 Biblio. Refs.

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USSR

LUSHCHIK, Ch. B., and GINDINA, R. I.

"Cleanliness and Perfection of Ionic Crystals for Physical Research"

V sb. Metody analiza galogenidov shchelochnykh i shchelochnozemel'nykh metallov vysokov chistoty (Methods for Analyzing Alkali Halides and Alkali Earth Metals of High Purity -- collection of works) Part I, Kharkov, 1971, pp 5-8 (from RZh-Fizika, No 9, 1971, Abstract No 9E235)

Translation: The authors discuss the basic requirements for the purity and perfection of ionic crystals used for scientific and applied research, including research of a fundamental nature. Resume

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USSR

SAVITSKIY, Ye. M., BARON, V. V., GINDINA, S. D.

UDC: 537.312.62

"Change of the Point of Transition to the Superconducting State in Alloys of Variable Composition Based on the Example of the Niobium-Tantalum System"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 166-170 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D552 [résumé])

Translation: A procedure is developed for measuring the temperature of transition to the superconducting state on alloys of variable composition. The specimen was made by the method of electron-beam zone melting; the composition of the specimen varied from 100% tantalum on one end to 20% on the other end. The transition temperatures of alloys in the niobium-tantalum system were measured on a single specimen of variable composition; the electrical resistances of all alloys in this system at 300 and 77 K were also determined. Two illustrations, bibliography of eight titles.

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